## Claims

1. A therapeutic antibody that specifically binds OSM, particularly hOSM, and modulates the interaction between OSM and gp130.

2. The antibody according to claim 1 comprising a CDRH3 of SEQ.I.D.NO: 3.

3. The antibody of claim 2 further comprising;

CDRH1 of SEQ.I.D.NO: 1
CDRH2 of SEQ.I.D.NO: 2
CDRL1 of SEQ.I.D.NO: 4
CDRL2 of SEQ.I.D.NO: 5
CDRL3 of SEQ.I.D.NO: 6

4. The antibody according to claim 1 comprising a CDRH3 of SEQ.I.D.NO:42.

5. The antibody of claim 4 further comprising;

CDRH1 of SEQ.I.D.NO: 40
CDRH2 of SEQ.I.D.NO: 41
CDRL1 of SEQ.I.D.NO: 43
CDRL2 of SEQ.I.D.NO: 44
CDRL3 of SEQ.I.D.NO: 45.

6. The antibody according to any one of claims 1 to 5 wherein the antibody is selected from the group consisting of; intact, chimaeric, humanised, bispecific, heteroconjugate.

7. The antibody according to claim 6 wherein the antibody is an intact antibody.

8. The antibody of claim 7 wherein the intact antibody is murine, rat, rabbit, primate or human.

9. The antibody of claim 8 wherein the intact antibody is human.

10. The antibody of claim 6 wherein the antibody is chimaeric or humanised.

11. The antibody of claim 8 wherein the antibody is humanised.

12. A humanised antibody of claim 2 wherein residues 28,29,30,71 and 94 of the human acceptor variable heavy chain framework region and positions 49 and 71 of the human acceptor variable light chain framework are substituted by the corresponding residues in the donor antibody framework from which CDRH3 is derived.

13. The antibody of claim 12 wherein the human heavy chain framework comprises the following residues (or a conservative substitute thereof):

| Position | Residues |
|---|---|
| 28 | S |
| 29 | L |
| 30 | T |

| | |
|---|---|
| 71 | K |
| 94 | K |

and the human light chain comprises the following residues (or conservative substitute thereof)

| Position | Residues |
|---|---|
| 49 | E |
| 71 | Y |

14. A humanised therapeutic antibody which specifically binds hOSM and modulates the interaction between hOSM and gp130 comprising a $V_H$ domain of SEQ.I.D.NO: 9 and a $V_L$ domain of SEQ.I.D.NO: 10.

15. A humanised therapeutic antibody which specifically binds hOSM and modulates the interaction between hOSM and gp130 comprising a heavy chain of SEQ.I.D.NO: 11 and a light chain of SEQ.I.D.NO: 12.

16. A humanised therapeutic antibody which specifically binds hOSM and modulates the interaction between hOSM and gp130 comprising a $V_H$ domain of SEQ.I.D.NO: 48 and a $V_L$ domain of SEQ.I.D.NO: 49

17. A humanised therapeutic antibody which specifically binds hOSM and modulates the interaction between hOSM and gp130 comprising a heavy chain of SEQ.I.D.NO: 50 and a light chain of SEQ.I.D.NO: 51.

18. A therapeutic antibody according to any preceding claim further comprising a human heavy chain constant region selected from the group consisting of; IgA1, IgA2, IgD, IgE, IgG1,IgG2,IgG3,IgG4, IgM.

19. A therapeutic antibody according to claim 18 wherein the constant region is of an IgG isotype e.g. IgG1 or IgG4.

20. A therapeutic antibody according to claim 19 wherein the constant region is IgG1.

21. A therapeutic antibody according to claim 20 wherein the constant region is mutated to render the antibody non-lytic.

22. The therapeutic antibody of any preceding claim wherein said antibody modulates the interaction between Site II of hOSM and gp130.

23. A therapeutic antibody of claim 22 wherein said antibody inhibits said interaction.

24. The antibody of claim 23 wherein said antibody blocks said interaction.

25. An antigen binding fragment of the therapeutic antibody of any preceding claim.

26. A fragment according to claim 25 wherein said fragment is selected from the group consisting of; Fab, Fab', Fd, $F(ab)_2$, ScFv.

27. A pharmaceutical composition comprising a therapeutic antibody or antigen binding fragment thereof according to any preceding claim.

28. A method of treating a human patient afflicted with a disease or disorder responsive to modulation of the interaction between hOSM

and gp130, said method comprising the step of administering to said patient a therapeutically effective amount of the composition of claim 27.

29. A method of treating a human patient afflicted with a chronic inflammatory disease or disorder said method comprising the step of administering to said patient a therapeutically effective amount of the composition of claim 27.

30. A method of treating a human patient afflicted with an arthritic disease or disorder said method comprising the step of administering to said patient a therapeutically effective amount of the composition of claim 27.

31. A method according to claim 30 wherein said patient is afflicted with rheumatoid arthritis and/or osteoarthritis.

32. A method of treating a human patient afflicted with an inflammatory lung disease such as asthma or COPD, said method comprising the step of administering to said patient a therapeutically effective amount of the composition of claim 27.

33. A method of treating a human patient afflicted with psoriasis, said method comprising the step of administering to said patient a therapeutically effective amount of the composition of claim 27.

34. A method of treating a human patient afflicted with a cardiovascular disease or disorder such as atherosclerosis which

method comprising the step of administering to said patient a therapeutically effective amount of the composition of claim 27.

35. A method of treating a human patient afflicted with Karposi sarcoma which method comprising the step of administering to said patient a therapeutically effective amount of the composition of claim 27.

36. Use of a therapeutic antibody or antigen binding fragment of any one of claims 1 to 26 in the manufacture of a medicament for the treatment of a disease responsive to modulation of the interaction between hOSM and gp130 such as rheumatoid arthritis, osteoarthritis, psoriasis, asthma, COPD.

37. A medicament comprising the therapeutic antibody or antigen binding fragment of any one of claims 1 to 20.

38. A vector (e.g. plasmid) encoding the heavy chain and/or light chain of the therapeutic antibody or antigen binding fragment of any one of claims 1 to 26, for example said vector comprises a polynucleotide of any one of claims 39 to 46.

39. A polynucleotide encoding the $V_H$ domain of SEQ.I.D.NO: 9 said polynucleotide comprising (or consisting essentially of) SEQ.I.D.NO:17.

40. A polynucleotide encoding the $V_L$ domain of SEQ.I.D.NO: 10, said polynucleotide comprising (or consisting essentially of) SEQ.I.D.NO: 18.

41. A polynucleotide encoding the heavy chain of SEQ.I.D.NO: 11, said polynucleotide comprising (or consisting essentially of) SEQ.I.D.NO: 19.

42. A polynucleotide encoding the light chain of SEQ.I.D.NO: 12, said polynucleotide comprising (or consisting essentially of) SEQ.I.D.NO: 20.

43. A polynucleotide encoding the $V_H$ domain of SEQ.I.D.NO: 48 said polynucleotide comprising (or consisting essentially of) SEQ.I.D.NO:54.

44. A polynucleotide encoding the $V_L$ domain of SEQ.I.D.NO: 49, said polynucleotide comprising (or consisting essentially of) SEQ.I.D.NO: 55.

45. A polynucleotide encoding the heavy chain of SEQ.I.D.NO: 50, said polynucleotide comprising (or consisting essentially of) SEQ.I.D.NO: 56.

46. A polynucleotide encoding the light chain of SEQ.I.D.NO: 51, said polynucleotide comprising (or consisting essentially of) SEQ.I.D.NO: 57.

47. A stably transformed or transfected recombinant host cell comprising the vector of claim 38.

48. A stably transformed or transfected recombinant host cell comprising a first vector comprising a polynucleotide of SEQ.I.D.NO:

17 and a second vector comprising a polynucleotide of SEQ.I.D.NO: 18.

49. A stably transformed or transfected recombinant host cell comprising a first vector comprising a polynucleotide of SEQ.I.D.NO: 19 and a second vector comprising a polynucleotide of SEQ.I.D.NO: 20.

50. A stably transformed or transfected recombinant host cell comprising a first vector comprising a polynucleotide of SEQ.I.D.NO: 54 and a second vector comprising a polynucleotide of SEQ.I.D.NO: 55.

51. A stably transformed or transfected recombinant host cell comprising a first vector comprising a polynucleotide of SEQ.I.D.NO: 56 and a second vector comprising a polynucleotide of SEQ.I.D.NO: 57.

52. The host cell of any one of claims 47 to 51 wherein said host cell is vertebrate cell.

53. The host cell of claim 52 wherein said cell is mammalian.

54. The host cell of claim 53 wherein said cell is CHO or NS0.

55. A process for the manufacture of a therapeutic antibody or comprising the step of culturing a host cell of any one of claims 47 to 51.

56. An antibody or antigen binding fragment which competitively inhibits the binding of the therapeutic antibody of claim 15 with OSM, particularly hOSM, more particularly Site II of hOSM in an ELISA based assay with the proviso that the competing antibody does not comprise a CDRH3 of SEQ.I.D.NO:42.

57. A pharmaceutical composition comprising the competing antibody of claim 56.

58. A method of treating a human patient afflicted with a disease or disorder responsive to modulation of the interaction between hOSM and gp130 (such as an arthritic disease e.g. rheumatoid arthritis and/or osteoarthritis) which method comprises the step of administering to said patient a therapeutically effective amount of the composition of claim 57.

59. Use of a therapeutic antibody which specifically binds the protein backbone of glycosylated hOSM (such as the antibody of claim 15 or 17) in the manufacture of a medicament for the treatment of a disease or disorder selected from the group consisting of;

an arthritic disease such as rheumatoid arthritis, juvenile onset arthritis, psoriatic arthritis, ankylosing spondylitis, psoriasis such as chronic plaque disease, inflammatory lung disease such as COPD or severe asthma, MS, dementia such as Alzheimer's disease, pain such as neuropathic or inflammatory pain, atherosclerosis, diseases of cell cycle regulation such as cancer (e.g. prostate), myeloma.

60. A pharmaceutical composition comprising a first therapeutic antibody which specifically binds hOSM and modulates the interaction between Site II of hOSM and gp130 and a second therapeutic antibody which specifically binds hOSM and modulates the interaction between Site III of hOSM and OSMRβ and/or LIFR.

61. A pharmaceutical composition comprising a bispecific therapeutic antibody which binds hOSM and modulates the interaction between both (a) Site II of hOSM and gp130 and (b) Site III of hOSM and OSMRβ and/or LIFR.

62. A pharmaceutical composition comprising at least a first antagonist that binds hOSM and modulates the interaction between both (a) Site II of hOSM and gp130 and (b) Site III of hOSM and OSMRβ and/or LIFR.

63. A pharmaceutical composition comprising at least a first antagonist (e.g. a proteineous antagonist such as an antibody) that binds gp130 and/or OSMRβ and/or LIFR and modulates the interaction (e.g. inhibits or blocks) the interaction between (a) gp130 and hOSM and (b) OSMRβ and/or LIFR and hOSM.

64. A method of screening an antibody that putatively binds OSM, particularly hOSM (e.g. an antibody which has been raised against OSM/hOSM), which method comprises;

(a) incubating said antibody with glycosylated OSM, particularly glycosylated hOSM, under conditions permissive for binding;

(b) measuring the binding affinity of said antibody;

(c) selecting said antibody if said antibody has a binding affinity of greater than 1uM, typically greater than 100nM;
(d) providing a polynucleotide encoding said antibody of step (c) and transforming or transfecting a mammalian host cell with a vector comprising said polynucleotide;
(e) culturing said host cell of step (d) under conditions permissive for secretion of said antibody into the culture media;
(f) optionally purifying the culture media of step (e);
(g) incorporating the antibody of step (e) or (f) into a pharmaceutical composition.

65. A method of screening an antibody that putatively binds OSM, particularly hOSM (e.g. an antibody which has been raised against OSM/hOSM), which method comprises;

(a) incubating said antibody with glycosylated OSM, particularly glycosylated hOSM, under conditions permissive for binding;
(b) measuring the binding affinity of said antibody;
(c) selecting said antibody if said antibody has a binding affinity of greater than 1uM, typically greater than 100nM.

66. The method of any one of claims 64 or 65 wherein the OSM has been glycosylated by a mammalian host cell such as CHO.

67. The method of claim 64 or 65 wherein the hOSM is native glycosylated hOSM.

68. The method of claim 67 wherein the hOSM has been isolated from the synovial fluid of a human, particularly a human afflicted with an arthritic disease such as RA.

69. An antibody identified by the method of any one of claims 65 to 68.

70. A pharmaceutical composition comprising the antibody of claim 69 and a pharmaceutically inert carrier.

71. A therapeutic antibody of claim 1 which in addition to being capable of binding hOSM is also capable of binding cOSM.

72. A method of detecting hOSM in a biological sample, particularly human synovial fluid or human sera which method comprises using a Site III antibody as a capture antibody in an ELISA based assay.

73. The method of claim 72 wherein the ELISA based assay is essentially example 16.